

## REMARKS

Applicant respectfully requests reconsideration of the present application in view of the foregoing amendments and in view of the reasons that follow.

Claims 1-11, 14, 16 and 20 have been withdrawn from consideration. Claims 12 and 13 have been amended. New claims 21-25 have been added. Support for new claims 21-25 can be found at least in Figure 5 and the specification starting at page 11, line 12. No new matter has been added.

Claims 12-13, 15, 17-19 and 21-25 are submitted for reconsideration.

This amendment adds and changes claims in this application. A detailed listing of all claims that are, or were, in the application, irrespective of whether the claim(s) remain under examination in the application, is presented, with an appropriate defined status identifier.

### ***Rejections under 35 U.S.C. §§ 102 and 103***

Claims 12-13 and 17-19 were rejected under 35 U.S.C. § 102(e) as being anticipated by U.S. Patent 6,794,717 to Matsumoto et al. (“Matsumoto “). Claims 12-13, 15 and 17 were rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent 5,663,588 to Suzuki et al. (“Suzuki “). Claim 19 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Suzuki in view of Matsumoto. Applicants respectfully traverse these rejections, insofar as they can be applied to the claims as amended, for at least the following reasons.

Independent claim 12 recites “recesses formed in opposing side surfaces of the first element region, the element isolation region being formed in the recesses, each recess formed between projections of the first element region.” Neither Matsumoto nor Suzuki disclose this feature of claim 12, nor the advantages attendant thereto.

Matsumoto discloses an H gate 71 formed in an element formation region isolated by a partial oxide film 31 (abstract). The H gate 71 electrically isolates a body region 13 formed in a gate width direction adjacent to a source region 51 and a drain region 61 (abstract). Figure 3 shows a top view of an embodiment of this structure.

In contrast to claim 12, however, Matsumoto fails to disclose recesses formed between projections of an element region. In Matsumoto, the body regions 13 of the element formation region are narrower than the region containing the source 51 and drain 61.

Presuming for the sake of argument that the sides of the body regions where the element formation region has narrowed could be considered to be recesses, these “recesses” are not between projections of the element formation region of Matsumoto, but instead are located at the corners of the element formation region. Thus, Matsumoto fails to anticipate claim 12.

Suzuki also fails to anticipate claim 12. Suzuki discloses in Fig. 1A and Fig. 1B three MOSFET devices isolated from each other by an isolation trench 19 filled with an insulating material 16. None of the element regions of the MOSFETs (containing the source, drain and channel), however, are shaped such that there is a recess formed between projections of the element region. Thus, Suzuki also fails to anticipate claim 12.

Matsumoto and Suzuki also fail to anticipate new independent claim 24. Claim 24 recites “first and second projections provided on one of opposing side surfaces of the first element region and made of the same material as the first element region; third and fourth projections provided on another one of the opposing side surfaces and made of the same material as the first element region; and an element isolation region provided around the first element region and the projections.” By contrast, neither the element formation region of Matsumoto, nor the element regions of the Suzuki MOSFETs include four projections as recited in claim 24.

Moreover, Matsumoto and Suzuki fail to realize the advantages of the structure of claims 12 and 24 in improving the mobility of carriers in the case that the element region is expanded when the isolation region is made of a material with a different thermal expansion than that of the first element region. The entire element region may be expanded in the channel width direction using the projections based on differences in thermal expansion coefficients of the materials which the element isolation region and the element region are made of. When the element region is expanded, the mobility of carriers improves, thereby improving the performance of devices in the element region, such as a MOS transistor, for example. Matsumoto and Suzuki, failing to disclose or suggest the structure of claims 12 or 24, also fail to suggest the advantages resulting therefrom.

The dependent claims are patentable for at least the same reasons as their respective independent claims, as well as for further patentable features recited therein.

With respect to at least the withdrawn claims ultimately depending from independent claim 12, applicant requests rejoinder and allowance of these claims upon allowance of claim 12.

Applicant believes that the present application is now in condition for allowance. Favorable reconsideration of the application as amended is respectfully requested.

The Examiner is invited to contact the undersigned by telephone if it is felt that a telephone interview would advance the prosecution of the present application.

The Commissioner is hereby authorized to charge any additional fees which may be required regarding this application under 37 C.F.R. §§ 1.16-1.17, or credit any overpayment, to Deposit Account No. 19-0741. Should no proper payment be enclosed herewith, as by a check being in the wrong amount, unsigned, post-dated, otherwise improper or informal or even entirely missing, the Commissioner is authorized to charge the unpaid amount to Deposit Account No. 19-0741. If any extensions of time are needed for timely acceptance of papers submitted herewith, Applicant hereby petitions for such extension under 37 C.F.R. §1.136 and authorizes payment of any such extensions fees to Deposit Account No. 19-0741.

Respectfully submitted,

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By Thomas G. Bilodeau

FOLEY & LARDNER LLP  
Customer Number: 22428  
Telephone: (202) 945-6162  
Facsimile: (202) 672-5399

Pavan K. Agarwal  
Registration No. 40,888

Thomas G. Bilodeau  
Registration No. 43,438

Attorneys for Applicant